

Villainy Inc: Thwarting World Domination Through...Mathematics!?

Mission 2 – Drive-Thru Deceit – Teacher Quick-Sheet & Answer Key

The Situation

Dr. Eugene Wick I.D. and his associate Platypus have decided to brainwash an army of children by buying a fast food franchise – Yummy’s! – and putting a subliminal message in the kids meals. As a double agent working for the Anti-Villainy Unit (AVU), the student must follow AVU orders to thwart Dr. Wick’s plans for fast food domination. Mission 2, *Drive Thru Deceit*, consists of 4 animation scenes and 4 math activities.

Animation Scene 1

Dr. Wick reveals his plan to take over the world by hiding subliminal messages in the children’s meals of his new restaurant, *Yummy’s!* He demands that you use the toys he and Platypus have created to make three possible Yummy Meals that his subliminal messages could be included in.

Activity A – Design 3 Yummy Meals (algebra – working with multiple scales, negative numbers)

The AVU gives acceptable ranges for both cost and coolness so the meals won’t raise suspicions but will still flop. You must make three separate meals that fall within these ranges by choosing from Dr. Wick’s creations.

The 4 steps on the problem To-Do list are:

- Step 1: Drag a toy into a meal box to create a Yummy Meal
- Step 2: Add or remove 1-4 toys so that price and coolness are in the green ranges
- Step 3: Design a second meal with the remaining toys
- Step 4: Complete the last meal with the toys that are left

Correct Answers:

- Answers will vary – acceptable meals have a cost between \$2.00 – \$4.00 and a coolness between 15 – 20
- Acceptable answers might include:

	Cost/ Coolness			Cost/ Coolness			Cost/ Coolness			Cost/ Coolness		Total Cost/ Coolness
<i>Bean Bags</i>	\$1.50	+	Official Wick Pen	25¢	+	Golf of Mexico Hole	\$1.85	+	Do-it-yourself monocle	5¢	=	\$3.65
	5			-5			15			5		20
<i>Dr. Wick Figurine</i>	\$2.50	+	11-inch Ruler	15¢	+	Goon Bookmark	10¢	+			=	\$2.75
	30			-7			-3					20

Animation Scene 2

After playing with his toys, Dr. Wick turns to the problem of where to build his first restaurant. Noting there are no Yummy’s! in his own county, he asks you to find a city with a large number of children he can brainwash.

Activity B – Find a location for the Yummy’s! franchise (interpreting graphs and charts, working with percents and decimals)

The AVU changes your mission, asking you identify the town with the *fewest* number of children in it.

The 3 steps on the To-Do list are:

- Step 1: Click towns to see population data and figure out how many children (1-9) live there.
- Step 2: Enter the number of children (1-9 years old) that live in the towns.
- Step 3: Choose the town that has *the least* children in it.

Correct Answers:

- The number of children in each town are:

Fictitious	Spurious	Springfield	Counterfeit	Figment
5.4% + 6.2% = 11.6%	3.5% + 3.7% = 7.2%	4.7% + 7.6% = 12.3%	1.9% + 2.9% = 4.8%	5.0% + 5.2% = 10.2%
0.116 x 32,003 =	0.072 x 24,561 =	0.123 x 93,343 =	0.048 x 807,322 =	0.102 x 23,721 =
3,712 children (1-9)	1,768 children (1-9)	11,481 children (1-9)	38,751 children (1-9)	2,420 children (1-9)
The town of <i>Spurious</i>, with a total of 1,768 children age 1-9, has the fewest children in it.				

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Animation Scene 3

Dr. Wick decides to promote his new restaurant with coupons, which no parent can resist. He asks you to choose which coupon will help swindle the most parents and bring in the most children.

Activity C – Choose a coupon with the greatest savings (percentages, working with money, decimals)

The AVU instructs you to select the coupon that will actually save people *the most* money.

The **2 steps** on the To-Do list are:

- Step 1: Enter the total amount each coupon saves.
- Step 2: Choose the coupon that saves the most money.

Correct Answer:

- The **total saved** for each coupon is:

60% off 3 boxes of chicken nuggets $\$1.99 + \$1.99 + \$1.99 = \5.97 $.60 \times \$5.97 = 3.582 = \mathbf{\$3.58}$	Buy 5 chicken sandwiches, Get 2 free $\$2.19 + \$2.19 = \mathbf{\$4.38}$	2 cheeseburgers for \$20 \$0.00 – No savings – this <i>increases</i> the cost of a burger!	50¢ off a large soda \$0.50 – The amount saved is listed right on the coupon!
The best deal – the coupon that saves the most money for the customer – is the ‘Buy 5 chicken sandwiches, Get 2 free’ coupon.			

Animation Scene 4

Dr. Wick auditions four acts to perform on opening day. Wick & crew each rate the performers, but each use a different scoring system. Dr. Wick demands you find the act with the best average, counting his score twice.

Activity D – Choose the live entertainment for opening day (average (mean), working with scales)

The AVU asks you to pick the performer with the *lowest* average rating by the three judges, ensuring disaster.

The **3 steps** on the To-Do list are:

- Step 1: Convert Platypus’ and the Goon’s scores into numbers from 0 to 10.
- Step 2: Enter the average score for each act.
- Step 3: Choose the act with the lowest average score.

Correct Answers:

- To convert Platypus’ scores: a blue ribbon = 10; a red ribbon = 5; and a white ribbon = 0.
- To convert Goon #34’s scores: thumbs up = 10, while thumbs down = 0.
- All answers should take the form:

$$(\text{Wick’s score} + \text{Wick’s score} + \text{Platypus’ score} + \text{Goon’s score}) \div 4 = \text{Performer Average}$$

Captain Kazoo & his Buckaroo $(2 + 2 + 5 + 10) \div 4$ $= 19 \div 4$ $= \mathbf{4.75}$ average score	“Crocky” McMullet $(8 + 8 + 10 + 0) \div 4$ $= 26 \div 4$ $= \mathbf{6.5}$ average score	Funny Bob Doppelganger $(9 + 9 + 5 + 10) \div 4$ $= 33 \div 4$ $= \mathbf{8.25}$ average score	Peach Gobbler $(5 + 5 + 0 + 10) \div 4$ $= 20 \div 4$ $= \mathbf{5}$ average score
The act the judges liked least is Captain Kazoo & his Buckaroo.			

Ending Animation Scenes

There are 3 possible ending animations, based on the performer selected in the last problem:

- **Selecting “Crocky” McMullet or Funny Bob Doppelganger** loads the worst ending, in which Dr. Wick and Platypus are stopped by the Federal Subliminal Advertising Agency (Receives *Good* overall mission rating)
- **Selecting Peach Gobbler** loads the okay ending, where a group from the Peach Conservation Society run Dr. Wick and Platypus out of town in protest. (Receives *Above Average* overall mission rating)
- **Selecting Captain Kazoo & his Buckaroo** loads the best ending, in which Dr. Wick & Platypus’ awful stand-in performance sends people running for the hills. (Receives *Outstanding* overall mission rating.)